Clarion

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Closer Relations through
"Clarion Service Manual"

Service Manual

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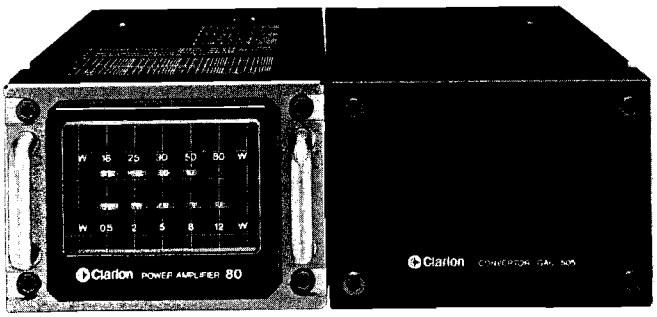
Model GA-505A



GA-505A-01 GAC-505-100

■SPECIFICATIONS:

MODEL GA-505A (Power Amp.)

Input sensitivity:	150mV (at 50W output)
Input impedance:	22kΩ
Load impedance:	4Ω (or 8Ω)
Power output:	50W (at 1% distortion)
Operation voltage:	DC ±25V (Supply from GAC-505)
Current consumption:	1.6A (at 50W output)
Dimensions:	Width 70mm
	Height 50mm
	Depth 150mm
Weight:	0.52kg

MODEL GAC-505-100 (Converter)

OSC. frequency:	26kHz
Output voltage:	DC ±25V, 1.6A
Power supply voltage:	DC 13.2V
Current consumption:	Less than 8A
Dimensions:	Width 70mm
	Height 50mm
	Depth 150mm
Weight:	0.68kg

■COMPONENTS:

GA-505A-01

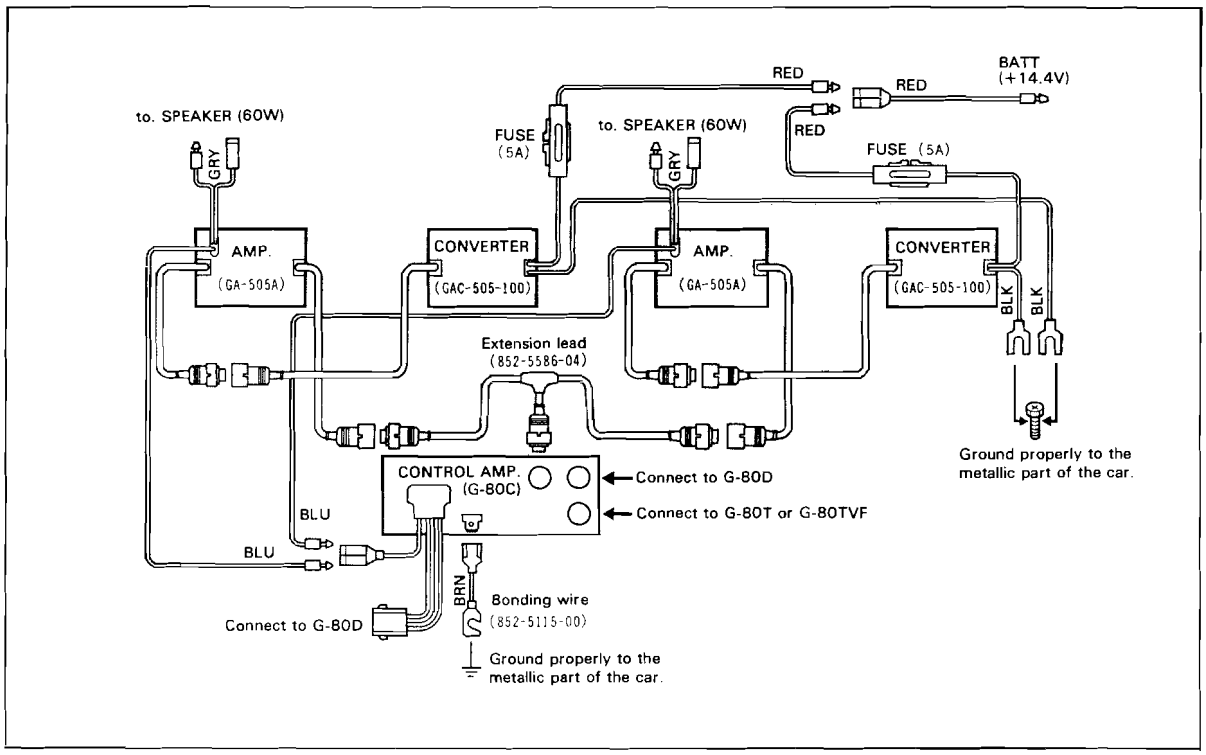
Main unit		1
Converter	GAC-505-100	1
Mounting bracket	300-4976-00	2
Mounting bracket	300-5700-00	2
A-lead	850-2101-00	1
A-lead	850-2102-00	1
Parts bag		1
Lead holder	335-0963-00	4
Machine screw	714-3005-89(M3×5)	4
Hex-nut	723-5000-11(M5)	6
D-sems hex-bolt	734-5010-31(M5×10)	6
D-sems hex-bolt	734-5016-31(M5×16)	6
Flat washer	740-5000-11(M5)	6

Printed in Japan 298-3115-00 GA-505A

■FEATURES:

- A high-powered, lightweight & compact sized amplifier with separate amplifier and converter components.
- A P.W.M (Pulse Width Modulation) system, which stabilizes the voltage on the amplifier by modulating pulse width is employed in the converter, dramatically reducing power consumption while giving power convertion efficiency.
- Ten bright power indicators illuminate to graphically show the power output.
  (Two GA-505 systems must be used for stereo effect.)

■WIRE CONNECTION:



■ADJUSTMENT:

GA-505A-01

A. Adjusting idling current

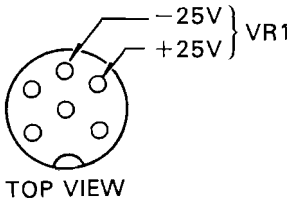
Adjust the semifixed resistors VR1 so that the voltage across the emitter resistor R24 (0.22 ohms) of the output transistors becomes 22mV.
(Clockwise rotation → voltage decreases)

B. Indicator Sensitivity Adjustment

1. Adjust the level of the input signal (1kHz) so that the output level is 5.0V (with 4Ω load).
2. Adjust VR2 so that the LED indicating 100%. (80W lights)

GAC-505-100

C. Adjusting output voltage



■PARTS LIST: ◎Electrical section

● GA-505A-01

REF.NO.	PART NO. (ORDER NO.)	DESCRIPTION	Q'TY
D_5	001-0206-00	Diode (STV-4HG)	1
$D_{2,3,4,9,10}$	001-0208-00	Diode (ITT73N)	5
D_1	001-0213-03	Diode (HZ9B1)	1
D_7	001-0286-00	Diode (HZ11A1)	1
TH_1	002-0194-00	Thermistor (2.2kΩ)	1
VR_2	012-3249-00	Variable resistor (30kΩ)	1
VR_1	012-3250-00	Variable resistor (500Ω)	1
R_{24}	032-0070-00	Film resistor (2W0.22Ωx2)	1
IC_1	051-0368-00	IC (TA7612AP)	1
$Q_{8,9}$	100-0817-15	Transistor (2SA817-O)	2
Q_{12}	100-0965-25	Transistor (2SA965Y)	1
$Q_{2,4,5,10,18}$	100-1015-15	Transistor (2SA1015O)	5
Q_{14}	101-0688-18	Transistor (2SB688R)	1
Q_1	102-0496-15	Transistor (2SC496O)	1
Q_7	102-1627-15	Transistor (2SC1627-O)	1
$Q_{3,15,16,17}$	102-1815-25	Transistor (2SC1815Y)	4
Q_{11}	102-2235-25	Transistor (2SC2235Y)	1
Q_{13}	103-0718-18	Transistor (2SD718R)	1
R_{19}	111-1011-32	Film resistor (¼W100Ω)	1
R_{109}	111-1021-32	Film resistor (¼W1kΩ)	1
R_{107}	111-1031-32	Film resistor (¼W10kΩ)	1
R_{18}	111-1211-32	Film resistor (¼W120Ω)	1
R_{33}	111-1221-32	Film resistor (¼W1.2kΩ)	1
$R_{22,23}$	111-1511-32	Film resistor (¼W150Ω)	2
R_{34}	111-1541-32	Film resistor (¼W150kΩ)	1
R_{14}	111-1811-32	Film resistor (¼W180Ω)	1
$R_{13,26,27}$	111-1821-32	Film resistor (¼W1.8kΩ)	3

REF.NO.	PART NO. (ORDER NO.)	DESCRIPTION	Q'TY
R_{10}	111-1831-32	Film resistor (¼W18kΩ)	1
$R_{16,17}$	111-2211-32	Film resistor (¼W220Ω)	2
R_{36}	111-2221-32	Film resistor (¼W2.2kΩ)	1
$R_{2,9,35}$	111-2231-32	Film resistor (¼W22kΩ)	3
R_{37}	111-2731-32	Film resistor (¼W27kΩ)	1
$R_{1,101}$	111-3311-32	Film resistor (¼W330Ω)	2
R_{31}	111-3331-32	Film resistor (¼W33kΩ)	1
R_{108}	111-3931-32	Film resistor (¼W39kΩ)	1
R_{20}	111-4711-32	Film resistor (¼W470Ω)	1
R_4	111-4731-32	Film resistor (¼W47kΩ)	1
$R_{110\sim113}^{102\sim106}$	111-5611-32	Film resistor (¼W560Ω)	9
$R_{12,15}$	111-5621-32	Film resistor (¼W5.6kΩ)	2
R_{30}	111-5631-32	Film resistor (¼W56kΩ)	1
R_{11}	111-8211-32	Film resistor (¼W820Ω)	1
$R_{5,114}$	111-8221-32	Film resistor (¼W8.2kΩ)	2
R_{28}	114-4791-52	Film resistor (1W4.7Ω)	1
C_{16}	141-1043-10	Polyester capacitor (50V0.1μF)	1
$C_{7,8}$	141-5113-10	Polyester capacitor (50V510pF)	2
$C_{11,13}$	160-1512-05	Ceramic capacitor (50V150pF B)	2
C_9	179-1073-22	Electrolytic capacitor (10V100μF)	1
C_{10}	179-4763-52	Electrolytic capacitor (35V47μF)	1
C_{14}	179-4773-53	Electrolytic capacitor (35V470μF)	1
C_6	180-1064-32	Electrolytic capacitor (16V10μF)	1
C_{19}	180-2254-62	Electrolytic capacitor (50V2.2μF)	1
C_{20}	180-2264-22	Electrolytic capacitor (10V22μF)	1
C_5	180-4744-62	Electrolytic capacitor (50V0.47μF)	1
$C_{1,2,15,18}$	180-4764-22	Electrolytic capacitor (10V47μF)	4

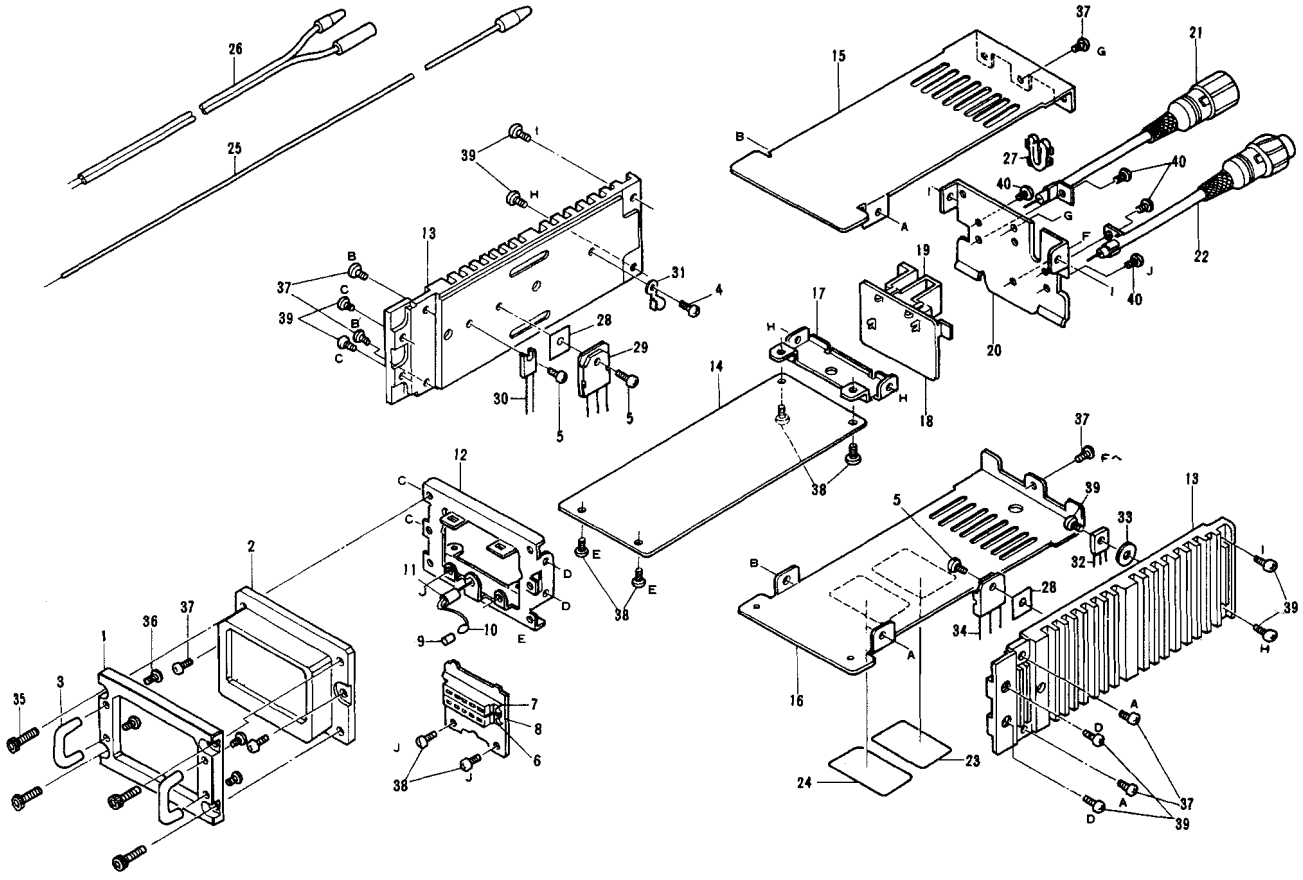
● GAC-505-100

REF.NO.	PART NO. (ORDER NO.)	DESCRIPTION	Q'TY
D_1	001-0186-00	Diode (10E2)	1
$D_{2\sim8}$	001-0208-00	Diode (ITT73N)	7
D_9	001-0293-00	Diode (CTU-2S)	1
D_{10}	001-0293-01	Diode (CTU-2R)	1
T_1	007-1090-00	Output trans	1
L_1	010-1663 00	Coil	1
VR_1	012-3808-06	Variable resistor (10kΩ)	1
$C_{10,11}$	042-0294-00	Electrolytic capacitor (35V3300μF)	2
C_9	042-0295-00	Electrolytic capacitor (16V3300μF)	1
IC_1	051-0367-00	IC (HA17524P)	1
Q_3	100-0950-15	Transistor (2SA950-O)	1
$Q_{5,10}$	100-1015-15	Transistor (2SA1015Y)	2
$Q_{8,9}$	102-1627-59	Transistor (2SC1627)	2
$Q_{1,2,4,6,7}$	102-1815-25	Transistor (2SC1815Y)	5
$Q_{11,12}$	103-0717-15	Transistor (2SD717O)	2
$R_{4,10,20,21,25,26}$	111-1021-22	Film resistor (¼Ws1kΩ)	6
$R_{6,7,9,11,31}$	111-1031-22	Film resistor (¼Ws10kΩ)	5
R_{12}	111-1051-22	Film resistor (¼Ws1MΩ)	1
R_{22}	111-1231-22	Film resistor (¼Ws12kΩ)	1

REF.NO.	PART NO. (ORDER NO.)	DESCRIPTION	Q'TY
$R_{28,29}$	111-1511-22	Film resistor (¼Ws150Ω)	2
R_{16}	111-2221-22	Film resistor (¼Ws2.2kΩ)	1
$R_{8,18,27}$	111-2231-22	Film resistor (¼Ws22kΩ)	3
R_{14}	111-2721-22	Film resistor (¼Ws2.7kΩ)	1
R_{19}	111-2731-22	Film resistor (¼Ws27kΩ)	1
$R_{1,24}$	111-3321-22	Film resistor (¼Ws3.3kΩ)	2
$R_{3,13,15,17}$	111-4721-22	Film resistor (¼Ws4.7kΩ)	4
R_{30}	111-4731-22	Film resistor (¼Ws47kΩ)	1
R_2	111-4741-22	Film resistor (¼Ws470kΩ)	1
$R_{5,23}$	111-6821-22	Film resistor (¼Ws6.8kΩ)	2
C_7	141-1031-10	Polyester capacitor (50V0.01μF)	1
C_4	173-1042-10	Polyester capacitor (50V0.1μF)	1
C_5	179-1073-22	Electrolytic capacitor (10V100μF)	1
C_3	179-1073-33	Electrolytic capacitor (16V100μF)	1
C_2	179-3363-22	Electrolytic capacitor (10V33μF)	1
C_6	179-4763-22	Electrolytic capacitor (10V47μF)	1
C_1	179-4773-33	Electrolytic capacitor (16V470μF)	1
C_8	180-4754-22	Electrolytic capacitor (10V4.7μF)	1

■EXPLODED VIEW:

◎Main section GA-505A-01



■PARTS LIST:

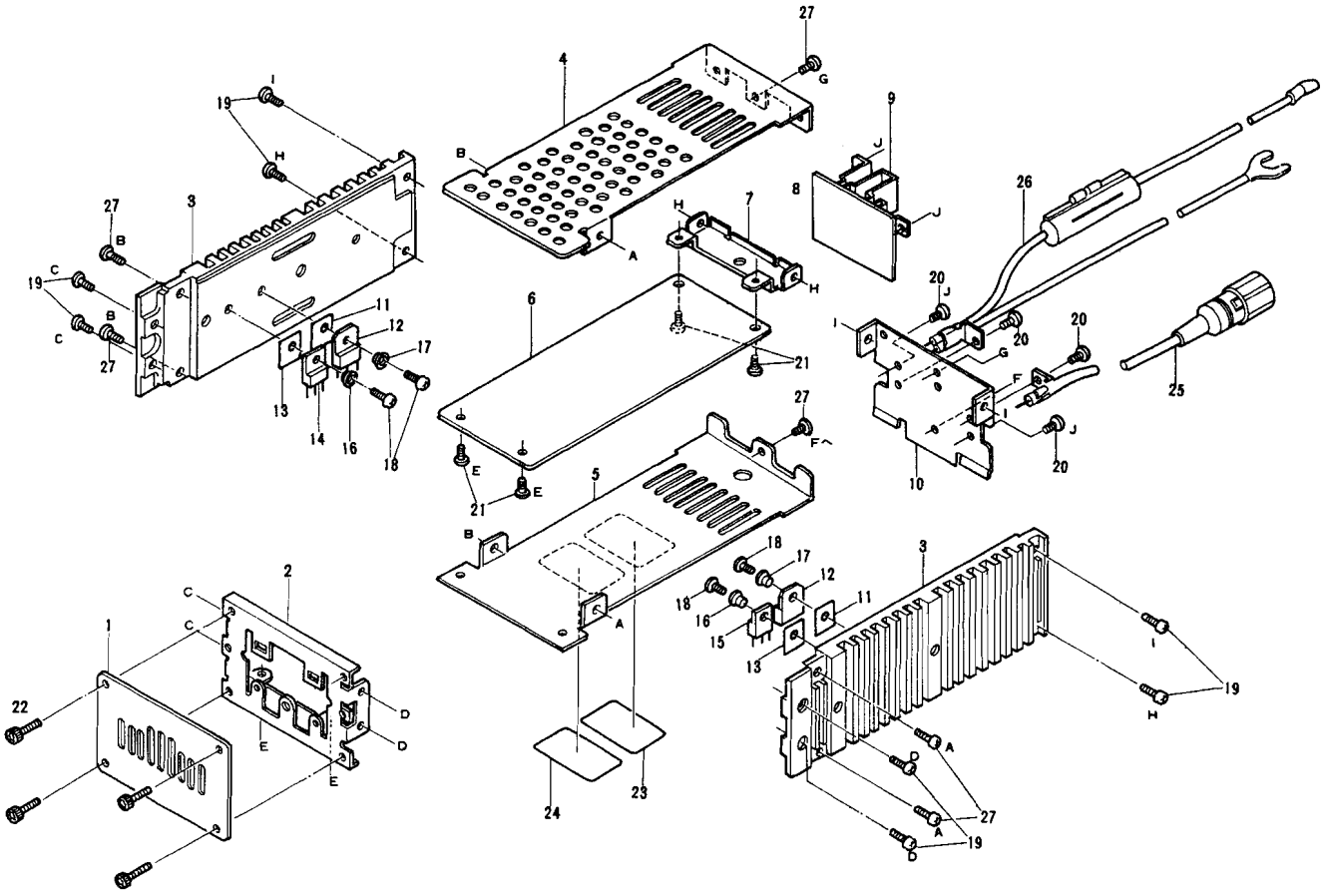
◎Main section GA-505A-01

NO.	PART NO. (ORDER NO.)	DESCRIPTION	Q'TY
1	370-3186-00	Escutcheon	1
2	940-0250A	Escutcheon ass'y	1
3	341-1193-00	Handle	2
4	714-3004-89	Machine screw (M3x4)	1
5	714-3008-89	Machine screw (M3x8)	3
6	379-0035-02	LED	1
7	379-0035-01	LED	1
8	099-6099-00	P.W.B	1
9	345-2830-03	P.L cap	1
10	017-0338-00	Pilot lamp	1
11	345-3157-00	P.L holder	1
12	309-0449-00	Front plate	1
13	313-1125-00	Heat sink	2
14	099-6097-00	P.W.B	1
15	303-0288-00	Upper cover	1
16	303-0288-02	Upper cover	1
17	300-6251-00	Mounting bracket	1
18	099-6100-00	P.W.B	1
19	944-0596-00	Filter ass'y	1
20	307-0341-01	Rear cover	1

NO.	PART NO. (ORDER NO.)	DESCRIPTION	Q'TY
21	852-6614-00	Extension lead	1
22	852-6615-00	Extension lead	1
23	286-3678-00	Set plate	1
24	285-0656-00	Guide label	1
25	850-2015-00	A-lead	1
26	851-1660-00	Speaker lead	1
27	335-0580-00	Lead holder	1
28	078-0049-00	Insulator sheet	2
29	103-0718-15	Transistor (2SD718)	1
30	001-0206-00	Diode	1
31	002-0194-00	Thermistor	1
32	102-0496-15	Transistor (2SC496-O)	1
33	078-0021-00	Insulator sheet	1
34	101-0688-15	Transistor (2SB688-O)	1
35	716-0333-00	Screw	4
36	714-3006-10	Machine screw (M3x6)	4
37	731-3006-89	Tap tight (M3x6)	8
38	714-3006-80	Machine screw (M3x6)	6
39	714-3006-89	Machine screw (M3x6)	9
40	731-3006-80	Tap tight (M3x6)	4

■EXPLODED VIEW:

◎Main section GAC-505-100



■PARTS LIST:

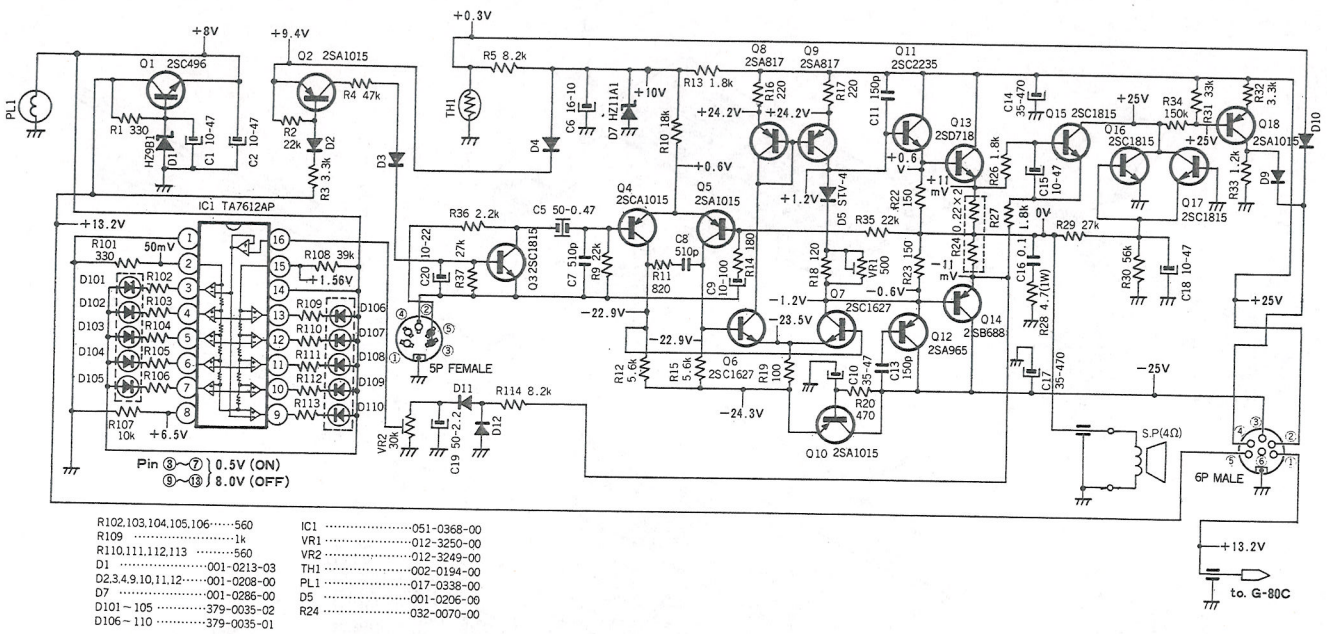
◎Main section GAC-505-100

NO.	PART NO. (ORDER NO.)	DESCRIPTION	Q'TY
1	308-0966-00	Front cover	1
2	309-0449-01	Front plate	1
3	313-1125-00	Heat sink	2
4	303-0288-01	Upper cover	1
5	303-0288-02	Upper cover	1
6	099-6098-00	P.W.B	1
7	330-6251-00	Mounting bracket	1
8	099-6100-00	P.W.B	1
9	315-0541-00	Filter case	1
10	307-0341-00	Rear cover	1
11	078-0049-00	Insulator sheet	2
12	103-0717-15	Transistor (2SD717-O)	2
13	078-0047-00	Insulator sheet	2
14	001-0293-01	Diode	1

NO.	PART NO. (ORDER NO.)	DESCRIPTION	Q'TY
15	001-0293-00	Diode	1
16	078-0046-00	Insulator sheet	2
17	078-0048-00	Insulator sheet	2
18	714-3008-89	Machine screw (M3x8)	4
19	714-3006-89	Machine screw (M3x6)	8
20	731-3006-80	Tap tight (M3x6)	4
21	714-3006-80	Machine screw (M3x6)	4
22	716-0332-00	Screw	4
23	286-3678-00	Set plate	1
24	285-0656-00	Guide label	1
25	852-6616-00	Extension lead	1
26	850-2103-00	A-lead	1
27	731-3006-89	Tap tight (M3x6)	6

■CIRCUIT DIAGRAM:

● GA-505A-01

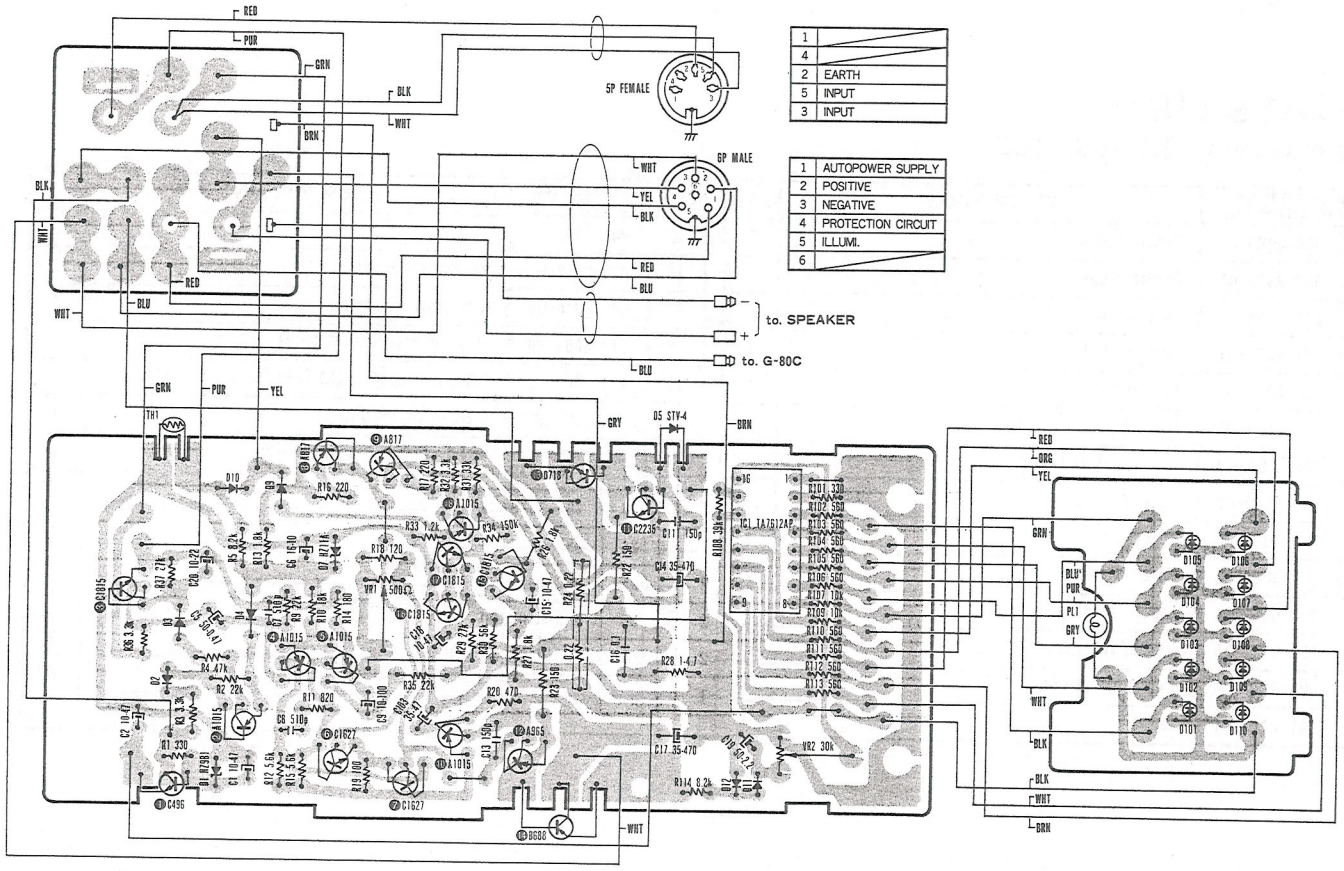


R102,103,104,105,106·····560
R109 ·····1k
R110,111,112,113 ·····560
D1 ·····001-0213-03
D2,3,4,9,10,11,12·····001-0208-00
D7 ·····001-0286-00
D101~105 ·····379-0035-02
D106~110 ·····379-0035-01

IC1 ·····051-0368-00
VR1 ·····012-3250-00
VR2 ·····012-3249-00
TH1 ·····002-0194-00
PL1 ·····017-0338-00
D5 ·····001-0206-00
R24 ·····032-0070-00

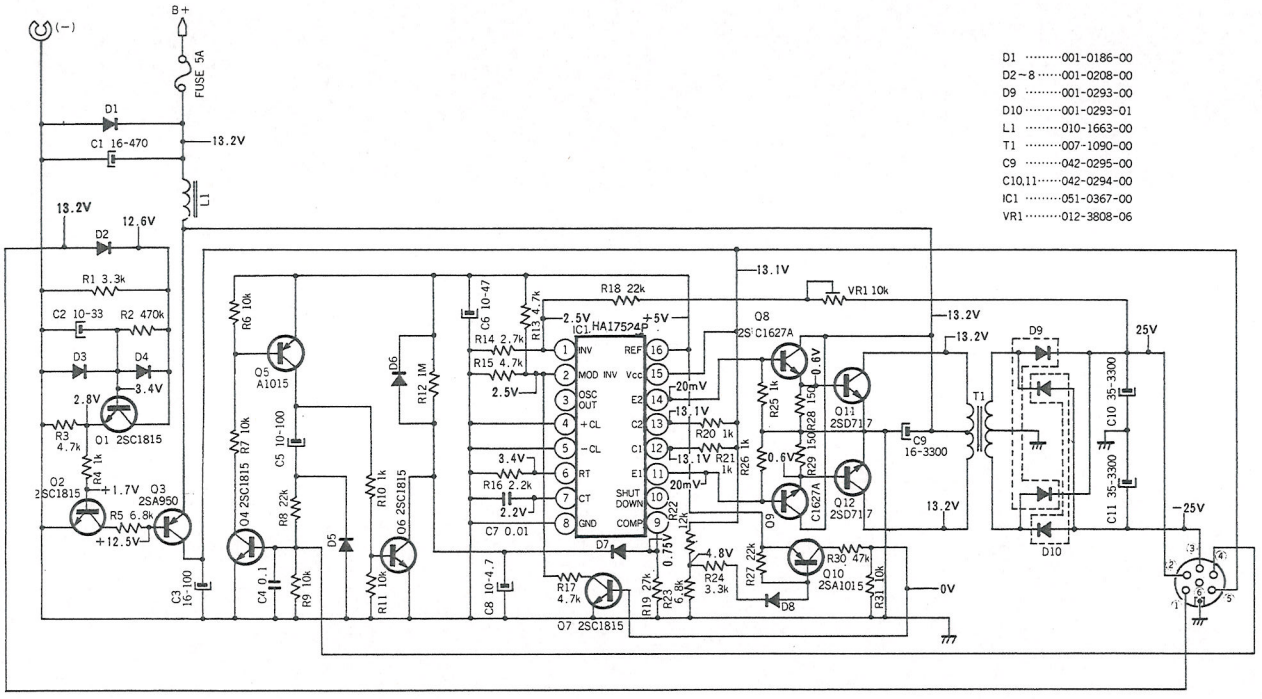
■PRINTED WIRING BOARD:

● GA-505A-01



■CIRCUIT DIAGRAM:

● GAC-505-100



■PRINTED WIRING BOARD:

● GAC-505-100